

R96 P2

A

PRACTICAL ESSAY

ON

THE DISEASE GENERALLY KNOWN UNDER THE DENOMINATION

OF

DELIRIUM TREMENS;

WRITTEN PRINCIPALLY WITH A VIEW TO ELUCIDATE ITS DIVISION INTO

DISTINCT STAGES,

AND HENCE

TO SIMPLIFY ITS METHOD OF CURE.

BY ANDREW BLAKE, M.D.

MEMBER OF THE ROYAL COLLEGE OF SURGEONS, AND SURGEON TO HIS MAJESTY'S
SEVENTH REGIMENT OF DRAGOON GUARDS.

Wee unto them that are mighty to drink wine, and men of strength to mingle strong drink.
Isaiah, v. 22.

WASHINGTON:

STEREOTYPED AND PUBLISHED BY DUFF GREEN.

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1834.

TO

SIR J. M'GRIGOR, KT. M.D. F.R.S. K.C.T.S.

Director General of the Medical Department of the Army, &c. &c.

SIR:—As the following Essay owes its origin to the stimulus afforded by your order, "That each Medical Officer should make an Annual Report to you of his practice and observations," I may with justice attribute my having written it to the wisdom of a regulation which emanated from you, and which has tended eminently to raise British military medicine to its present high station.

I therefore confidently trust that you will pardon the liberty I take in venturing most respectfully to dedicate it to you, and that you will also allow me to have the honor to subscribe myself,

Sir,

Your most obedient,

And very humble Servant,

ANDREW BLAKE.

PREFACE.

SINCE October, 1823, when a paper of mine appeared in the Edinburgh Medical and Surgical Journal, on the disease which forms the subject of the present publication, so many detached observations have been written upon this curious affection, in various parts of the world, as at once to show that it is either becoming gradually more prevalent, or that medical men begin to be more generally aware of the importance of being better acquainted with its peculiar nature and treatment. Systematic writers, such as Good and Gregory, have also given it a place in the last editions of their valuable works. These authors, however, differ with regard to its classification; the former placing it amongst nervous diseases, while the latter has added it to his list of phlegmasial complaints. Such diversity of opinion between authors so deservedly esteemed, concerning the nature of this disease, and the consequent utility of its particular investigation, will be further appreciated by the perusal of the following remarks from the pen of Dr. James Johnson.* This intelligent author observes—"Much as has been written on delirium tremens, the disease is every day mistaken, maltreated, and rendered fatal by confounding it with inflammation of the brain or its membranes, to which it certainly bears much resemblance in many particulars."

Dr. Michael Ryan† corroborates this statement. In one of his papers he says, "As the systems of practical medicine in this country do not contain an account of the disease at the head of this paper, and as many persons lose their lives in consequence of this omission, I am induced to attempt its description. Should this paper be the cause of saving the life of a single individual, I shall have no reason to regret its obtrusion on the junior members of the profession. I am not acquainted with any disorder so often

* Vide Medico-Chirurgical Review for August, 1823, page 509.

† London Medical and Surgical Journal for October, 1829, page 316.

mistaken and mismanaged as delirium tremens; and the reason is very obvious, because the greatest proportion of the profession, especially in this metropolis, have not leisure to refer to any works, except the popular systems, and I am satisfied a vast majority of them have never perused the original essays on the subject, therefore, there is a sufficient reason for the present allusion to the disease."

Authors in general continue likewise to describe the disease as if it were constituted of but one stage, namely, that of delirium; an error which must ever lead to the adoption of improper curative means, at least during the existence of the other stages, and which it shall be the object of this publication to endeavor to point out.

From December 1822, the period at which I wrote the paper already alluded to, until July 1824, many cases of this complaint came under my care in the islands of St. Vincent and Dominica, all of which tended to confirm me in the opinions I had before formed as to its nature and appropriate treatment. On my return to this country, when about to receive a medical degree, I added the result of my further experience on this subject to what I had before written, and reduced the whole into the form of a Thesis,* which was not however published, owing to the delay it would have then occasioned.

I have now, at the suggestion of some friends, and for the reasons already stated, determined to submit it to the public with a few additions, which are the result of reading and observation, in the hope that it may tend to establish a rational theory, and point out a successful mode of practice for the cure of this interesting and dangerous complaint; or at least to excite some more fortunate investigation concerning its extraordinary phenomena. In doing so, I am aware that the scholastic form I have adopted, as well as the numerous repetitions which this essay unavoidably contains, may seem objectionable to many; but if it serves to convey my meaning, and produces, even in the slightest degree, the effect I propose, I shall consider as well spent the time allotted to its composition.

Had I been anxious to increase the size of this monograph, I might have done so easily by the addition of a number of cases, the details of which would have extended it considerably; but as I only intend it to be of practical utility, and have written principally with a view to establish a few facts

* The learned professors of the University of Glasgow, being aware of the facility with which a Thesis can be obtained, and consequently that, generally speaking, it can be no criterion of the candidate's knowledge, judiciously leave it to his option to write one or not.

regarding its true nature and proper treatment, I have refrained from doing what seems to me unnecessary.

The paper which I originally wrote on this subject was meant as a part of one of those Annual Reports which the present indefatigable and distinguished chief of the army medical department requires from all medical officers. It was forwarded to Mr. Tegert, then inspector of hospitals in the West Indies, who was pleased to notice it particularly, by addressing a circular letter,* of which the annexed is a copy, to each of the principal medical officers of the various stations then under their superintendence. Exclusive of the gratification which it affords me to make known the approbation of so learned and zealous an inspector, I am anxious, under the present circumstances, to give his letter publicity, as it contains a concise and clear analysis of the views I entertain with regard to the division of this disease into three distinct stages.

I also subjoin copies of two other letters which allude to the same subject, and testify the approbation which the Inspector's measures and opinions received from the Army Medical Board.

* For the letters above alluded to see the end of this Essay.

A
PRACTICAL ESSAY

ON

DELIRIUM TREMENS.

THE various diseases to which the human race is subject, arise either from original conformation, from accidental causes, or from the effect of habits and circumstances, which are, in a great measure, under the control of the will. The complaint investigated in the following pages will be found to belong to the last class, and might, by a due exercise of the sensorial faculties, be altogether prevented; but unfortunately for us, we do not all sufficiently engage them in moderating the propensities to which our frail nature directs us, the consequence of which is, that we entail on ourselves maladies to which we should otherwise be utter strangers, and amongst which, the affection about to be treated of holds a distinguished rank.

It is described by different authors under various appellations, such as, Brain Fever produced by intoxication, by Pearson; Delirium Tremens, by Sutton: a peculiar disorder of drunkards, by Armstrong; Delirium and Mania e Potu, by American physicians; Encephalopathie Crapuleuse, by a French writer; and in a paper which I wrote on the subject, and which appeared in the Edinburgh Medical and Surgical Journal for October, 1823, and the London Medical and Physical Journal for November of the same year, I proposed giving it the name of Delirium Ebriositatus. But on more mature consideration, I am induced to regard even this term as not altogether free from objection, inasmuch as it will appear in the sequel of this essay, that there is no febrile excitement or delirium in the first stage of the disease, and consequently that its adoption would be naming a whole from a part, and to join in the errors into which most authors on the subject have fallen, in considering the disease as attended with mental derangement "ab origine," and in not sufficiently distinguishing its different stages.

The term rigor, for obvious reasons, would as clearly designate a paroxysm of ague, as delirium does the disease in question. Dr. Armstrong's appellation of the complaint appears to me least liable to criticism, namely, "a peculiar disorder of drunkards;" but even this is very vague. Perhaps it would be more appropriate to call it Erethismus Ebriositatis,* and to assign it a

* Dr. Ryan, in the learned paper already alluded to, after having explained the necessity of calling the attention of the profession to the description and treatment of this disorder, says, with reference to its appellation, "This disease was called Brain Fever, by Drs. Pearson and

place in the nosology of Cullen,* in his class Neuroses, and order Adynamia. The propriety of this classification will be estimated by a consideration of the following definition of the disease, viz.

Indirect general debility, succeeded by a morbid increase of action in the brain and nervous system, which is attended with delirium, and terminates generally, either in sleep and subsequent health or in death, from collapse or effusion on the brain.

I have endeavored to be as concise, and at the same time as expressive as I could, in making this definition include in a few words all the leading symptoms of this disease, and particularly the most prominent features in its different stages.

The complaint under consideration is particularly prevalent amongst British soldiers, as well as the lower classes of the white population, resident within the tropics; hence, it becomes a subject equally worthy the attention of the civil and military medical officer obliged to sojourn in such latitudes. Since the reduction in the price of spirits in these countries, it has also become a much more common occurrence than formerly, more particularly in manufacturing districts and large towns. Its predisposing cause, as it will appear in the sequel, is admitted to be the habitual abuse of diffusible stimuli, but more particularly of ardent spirit; we may, therefore, naturally expect, that it will occur in every part of the world where such customs prevail, and that in the direct ratio of the facility with which the necessary agents are attainable.

The West Indies, where rum is an object of so little value, and where the debilitating effects of permanent elevation of temperature excite the most abstemious to allay their thirst, and thus insensibly lead to the acquirement of intemperate habits, will appear a very likely situation to furnish frequent

Armstrong; Delirium Tremens, by Dr. Sutton; and Delirium Ebriositatis, by Mr. Blake, to each of which appellations there are many objections. The term Brain Fever, is applied to very different diseases, to Typhus, Phrenitis, and Mania, and various other complaints. We are also aware that the disease under notice may exist, unaccompanied with tremors, and it may arise from the abuse of various stimuli, as opium and belladonna, &c., as well as from the abuse of ardent and fermented liquors. A much more correct term for the disorder, in my opinion, is Delirium Nervosum.—To this term I have to repeat, with all due deference, the objections already stated with regard to the word delirium, that symptom being only peculiar to one of the three stages into which this disease is divided. Ague might as well, as I said before, be called rigor, because it is a prominent symptom in its cold stage. The term Nervosum appears to me equally objectionable, even on the same principles as those on which the doctor himself opposes Dr. Pearson's appellation, as we are aware that every functional derangement of the intellectual faculties, such, for example, as Puerperal Mania, has as good a claim to the term Delirium Nervosum, as the disease generally known by that of Delirium Tremens. With regard to the doctor's objection to the term Delirium Ebriositatis, namely, that the disease "may arise from the abuse of various stimuli, as opium and belladonna, &c., as well as from the abuse of ardent and fermented liquors,"—I must say, that, although I coincide perfectly with him in this opinion, yet as the doctor admits this disease, to use his own words, "most commonly attacks persons of either sex who are of intemperate habits, and as the habitual abuse of opium or other diffusible stimuli produces similar ultimate results to those which succeed to long and intemperate indulgence in ardent and fermented liquors, I cannot perceive the great objection to the ebriositatic portion of this appellation, more particularly as it implies previous habits which "most commonly" predispose to the disease.

Notwithstanding that Dr. Ryan has differed in opinion with me on the above points, I feel particularly flattered by his literal adoption of what I consider of much importance, that is, my division of this disease into "three distinct stages."

* Good, in the last edition of his elaborate and scientific work, notices Delirium Tremens, and places it in his Class Neurotica, Order Phrenica, and Genus Alusia. He, however, gives but few data to enable the practitioner to treat the disease, and seems satisfied by referring in a note to my paper, in the Edinburgh Medical and Surgical Journal for October, 1823, page 501.

examples of this curious and alarming malady: and it will generally be met with in regiments, or inhabitants, in proportion to the length of their residence in these islands. This circumstance does not appear to me to have sufficiently attracted the attention of writers on tropical disease, none of them having to my knowledge, noticed it in any of the celebrated works they have published on this subject. Such a neglect might be excusable in an author on the diseases of England, where this complaint has been, until lately, comparatively unknown, or in a great measure confined to certain parts of it, owing to the difficulty which the lower orders experienced in obtaining spirits in sufficient quantity to induce the necessary predisposition. Traces of this affection may, notwithstanding, be discovered in the writings of ancient authors, even so far back as in those of Hippocrates* under the heads of Febrile, Phrenetic, and Maniacal disorders; and yet it is not a little remarkable, that Dr. Trotter, in his well-known work on drunkenness, published so late as 1804, has allowed this disease to pass unnoticed. He occasionally speaks of hallucination, particularly in one of his cases of phrenetic delirium, or brain fever: but he does not appear to have been aware of the particular nature of the complaint in question, having treated this case as if it were the immediate effect of stimulation, by general bleeding, &c. In another part of his work, he says, "There is a species of delirium that often attends the early accession of typhus fever from contagion, that I have known to be mistaken for inebriety among seamen and soldiers, where habits of intoxication are common: and it will sometimes require nice discernment to decide, the vacant stare, the look of idiotism, incoherent speech, faltering voice, and tottering walk are so alike in both cases." Such symptoms as those just detailed, occurring in persons addicted to intoxication, would induce me to regard them as indicative of the first stage of delirium tremens; but this author, although treating on the effects of drunkenness, seems to have been totally ignorant of the nature of such a disorder.

Within the tropics, and in all countries where rum or other spirits are cheap, and where the soldier, in some instances, is, I may say perched on the truncated summit of a volcanic cone, as on Fort Charlotte in the island of St. Vincent, without a contiguous spot of level ground to amuse himself upon; and has, at the same time, as if to try his powers of abstemiousness, a canteen for the sale of spirits established under the same roof with him;—I say, that so situated and only gifted with the ordinary mental resources of those who move in his sphere of life, while he is amply supplied with money to gratify his propensities, it cannot be wondered at, that, after a few years' residence, what may be called the ebriositatic diathesis should be induced, and that he should become the victim of diseases arising from the effects of habitual intoxication.

From a knowledge of these facts, it appears to me extraordinary how so remarkable and prevalent an effect, and one which, for evident reasons, must have manifested itself during every prevailing endemic in such situations, could have been so long overlooked by authors of deserved celebrity. It is not to be supposed that this affection is to be met with more frequently in those latitudes at the present day than formerly, the habits of the soldier not being more depraved now than at the periods when these authors wrote. If any change has taken place, I should think it must be in favor of sobriety; at least, if I were to judge of their habits from the reformation which has been effected of late years in those of all other classes of West India inhabitants.

* De Morb. Popular, lib. iii. sect. 2, ægrot. v.

During a residence of upwards of five years in the West Indies, as surgeon to His Majesty's fifth regiment of foot, and during part of that time, while acting as principal medical officer of the Island of St. Vincent, I had frequent opportunities of observing the progress and effects of this disease from its earliest stages, and will now relate the result of the observations which a close attention to the subject enabled me to make.

The greater number of authors who have published any thing concerning it, appear to coincide, with but little variation, as to the nature of its causes, and to a certain extent as to the principle on which the *methodus medendi* ought to be directed; but they do not seem to me to have sufficiently explained all its phenomena, and have omitted altogether the division of the disease into stages,* a precaution of considerable moment, as on an accurate knowledge of them will depend that judicious modification so essential in the cure of all such diseases. They have likewise neglected to remark on some of its pathological characters, as well as on many essential points in the order of treatment in this formidable complaint.

From all the observations I have been enabled to make, and more particularly from the table which I shall annex, exhibiting the duration of the various symptoms as they presented themselves in the cases which occurred in the right wing of the fifth regiment in the course of the year 1822, as well as from my subsequent experience, I am induced, for the better description of the disease, to divide it into three distinct stages; and the regularity with which they came under my notice in every case, makes me consider this affection as a disease "*sui generis*," somewhat similar in its course to a paroxysm of ague; to which, indeed, it bears no small analogy, being to the brain and nerves what intermittent fever is to the arterial system.

In the ten cases alluded to in the appended table,† the stage of nervous excitement came on, at different periods, within five or six days from the date of their admission into hospital, which may be also regarded, in most instances, as the date at which the patient begun to abstain from intemperate habits. It succeeded to trivial affections of various sorts, such as slight febrile action, gastric derangement, &c., which were often the effect of an unusual debauch, and in one instance it supervened to a case of ambustio. I have since had an opportunity of seeing this disease come on frequently during the prevalence of endemic remittent fever and ophthalmia, as well as to accidents of different sorts, which occurred in the garrisons of St. Vincent and Dominica during the years 1823 and 1824. I also observed a tendency to it in many persons laboring under these affections, which, by attending to the principle "*principiis obsta*," in the timely administration of appropriate remedies, was checked, and the disease prevented. This complaint, therefore, could not fail, as I said before, to have been frequently met with under similar circumstances among old residents in the West Indies; and it is probable, from the silence of authors concerning it in their works on tropical disease, that it has been regarded, when it did occur, as ordinary delirium, supposed to have arisen from excitement, and must consequently have been treated in any way but the proper one.

* The only authors, with whom I am acquainted, who have adopted the division of the disease into stages, are Doctors Lyons and Ryan. The former is an intelligent staff surgeon, who published a thesis on the subject at Edinburgh, in August 1827. This officer had ample opportunities of observing the course of the disease in the West Indies.

Dr. Ryan's paper will be found in the October number of the London Medical and Surgical Journal, of which the learned doctor is editor. Since writing the above, I find a Dr. Barkhausen of Bremen, has also adopted this classification.

† See the table at the end.

When a patient is taken into hospital, laboring under symptoms of endemic fever or ophthalmia for example, he is of course deprived, under ordinary circumstances, of spirituous potations during the first days of his illness, at least he is so by practitioners who are unaware of the nature and causes of delirium tremens; the consequence is that the nervous system of such a person begins to feel the loss of its accustomed stimulus, and for want of it gradually sinks into a state of extreme exhaustion, which is generally increased by the depletory measures used at the commencement of the attack for which he was admitted. This state of exhaustion, as will be seen in the sequel of this essay, is the first stage of what is termed delirium tremens, and is succeeded by a state of delirium too easily confounded with phrenitis, particularly by those who are unacquainted with these facts, and which, if treated as such, will, in all probability, terminate fatally. Such morbid combinations must always be perplexing and dangerous, even under the care of those who happen to be acquainted with their nature, as the treatment necessary for the cure of this species of mental derangement may be highly injurious in the affection under which the patient originally labored.

In Europe, also, this disease has been oftentimes overlooked, or even treated as mania or phrenitis, by copious depletion, to the no small risk of individuals so affected. The various periodical publications are not devoid of examples of this fact. Cases, likewise, are on record, in which surprise is expressed at finding that the delirium, which came on some days subsequent to the occurrence of a compound fracture, was cured by a copious draught of ardent spirit, obtained by stealth; denoting clearly a total ignorance of the nature of the disease under consideration. Fortunately, however, there are but few good practitioners of the present day who would betray such a want of discrimination.

In the following lines, taken from some old manuscript notes of lectures delivered by Dr. Colles, a learned and experienced professor in the Royal College of Surgeons, Dublin, it will be seen that this able practitioner did not allow so interesting a complaint to escape his observation:—

"A fever of a peculiar kind is apt to attack men who have been addicted to hard drinking; as for instance, brewers' men. Such patients having a compound fracture or wound, will be seized about two or three days after with fever and delirium (apparently ferox), and great nervous agitation: this happening in a strong and bloated man, would lead you to suppose that venesection would be the proper means of treatment, but this is not the case; opium, in large doses, as sixty drops, and repeated in two or three hours, until the patient is thrown into a deep sleep, is the only remedy. As soon as sleep is procured, the man will certainly awake quite well. For the same reason, a large quantity of his usual beverage might be given."

In Dublin this disease is not uncommon, as might be expected from the low price of spirit in that city, and it is known to the lower orders there under the appellation of whiskey fever.

Baron Dupuytren, of Paris, has lately written, in the periodical publication termed the *Repertoire*, on what he calls a particular species of traumatic delirium. In it he observes, that "no surgical writer has taken notice of such an occurrence." He also states, that "there is but one case of this sort on record, the author of which was a Mr. Bouillon. Now, if the ingenious Baron had read the number of the *Archives Generales de Medicine* for January 1824, section *Medicine Etrangere*, he would have seen in it a translation of my paper on delirium ebriositatis; and by a reference to the table at the end of it, he must have observed that the sixth case noticed there

succeeded to an affection, the treatment of which belongs to the province of surgery, namely, ambustio. He would likewise have seen, by comparing the history of his cases with my description of the disease, that we both alluded to the same complaint, that generally known under the denomination of delirium tremens. But had the Baron given the affection he treated of that name, he must have relinquished the claim to originality of observation, to which it is evident he aspires. We must either take this view of the case, or come to a conclusion, the truth of which is less probable, namely, that this celebrated surgeon was not previously aware of the nature of the disease in question. Our continental brethren in general are desirous to appropriate to themselves any thing which may tend to enhance their professional fame, which the number and zeal of their authors, particularly on pathology, have already raised to a high degree of pre-eminence.

The greatest objection which I see to Baron Dupuytren's appellation of this disorder is, that it would imply its being the peculiar consequence of wounds or accidents, whereas it is not confined to any one state or injury of the system, but will arise in all conditions, whenever the necessary diathesis is induced by habitual intemperance, and then that the system be suddenly deprived of its accustomed stimulus, owing to a cessation of those habits. Under such circumstances, it does not matter whether the subject be affected with typhus fever or a whitlow, or whether he be put into solitary confinement and restricted to bread and water, though in apparent health at the moment of his confinement—in either case he will, in all probability, be attacked in due time with the disease under consideration.

Since the Baron's publication, cases have appeared in the periodical works of this country, under the head of Traumatic delirium, all of which I attribute to the sudden cessation of habitual intemperance alone, and not to the peculiar consequence of a wound or fracture, further that such wound or fracture may have been the cause of the sudden cessation of intemperance: hence the impropriety of the term traumatic delirium.

Dr. Barkhausen, of Bremen, has published observations on delirium tremens, the analysis of which I saw in the 14th number of the North American Medical and Surgical Journal. This author, who wrote in 1828, divides the disease into the acute and chronic, the idiopathic and symptomatic, and the sthenic and asthenic species. The first two of these terms, he says, are used in the ordinary sense of the nosologists; idiopathic delirium tremens is stated by him as arising solely from intemperance, unconnected with any other disease or injury, while he considers the symptomatic as that which occurs during some other affection, or subsequent to a fracture, wound, &c. The last division which Dr. Barkhausen considers the most important, is that of the disease into the sthenic and asthenic forms.

From what I have already said on the subject of traumatic delirium, it will, I think, appear that there are no good grounds for the division of this disease into the idiopathic and symptomatic forms: the disorder, in my humble opinion, is in all cases purely idiopathic, arising invariably from the same cause, namely, the sudden cessation of intemperate habits.

With regard to the sthenic and asthenic division of the complaint, I consider them equally objectionable. I look upon delirium tremens as altogether an asthenic affection; as well from the nature of its cause, as from the nervous symptoms which constitute it. This author's division of the disease into the acute and chronic species seems to me also unnecessary, and only calculated to mislead. Of course the symptoms of this complaint, as I have elsewhere stated, will manifest a chronic or acute, or sthenic or asthenic ten-

dency, according to the previous state of the constitution, age, and habits of the patient; but they never follow such a course as would warrant the division above alluded to: however particular symptoms may simulate the sthenic diathesis, the system, during this affection, will always be found in a very opposite state.

The slight febrile action, and other trivial indispositions noted in the table alluded to as preceding this affection, were generally the immediate effects of excesses.

The first distinct indications of this disease usually appear in the following order: a peculiar slowness* of the pulse, frequently as low as forty-four in a minute, attended with coldness of the hands and feet, which being in general bedewed with moisture from the effect of evaporation, present a clammy, icy feel; these are preceded and accompanied with symptoms of general debility, and a diminution of temperature, owing of course to the defect of sensorial or nervous influence. Cramp in the muscles of the extremities, with giddiness, nausea, and occasional vomiting, are also troublesome; the bowels are generally open, but sometimes the contrary; nervous tremor of the hands and tongue, the latter being moist and but slightly furred, form, also, in most instances, prominent features in this stage. All these are accompanied with dejection of spirits, frequent sighing and oppression of the precordia, anxiety and depression of the countenance, with short and interrupted slumbers.

The length of time which elapses after the privation from the accustomed stimuli, before the commencement of these symptoms, or the first stage of the disease, is uncertain, as it depends on predisposition, and the nature and habits of the subject.

The immortal Byron seems to have been well acquainted with the feelings peculiar to the ebriositatic diathesis, or the necessary state of predisposition to this disease, which is brought on by intemperate habits. He describes it in the following lines:—

"The drainer of oblivion, even the sot,
Hath got blue devils for his morning mirrors;
What though on Lethe's stream he seem to float,
He cannot sink his tremors or his terrors:
The ruby glass that shakes within his hand,
Leaves a sad sediment of time's worst sand."

As the second stage approaches, the countenance gradually assumes a wild aspect; the patient becomes restless, with an apparent anxiety to perform immediately whatever you desire, or even to anticipate you in what he thinks you are about to require.

I have generally been able to prognosticate approaching delirium, by a careful discrimination of this last symptom.

The duration of the first stage will invariably be in proportion to the nature and extent of the cause, and the state of the constitution and previous habits of the patient; thus, in a young and healthy subject, where habits of excess have not been of long standing, and consequently where the resources of nature have not been much exhausted, nervous re-action, or the stage of excitement, will come on much quicker than in those persons whose systems

* This slowness of the pulse I have invariably observed as indicative of the first stage of the complaint. I am not aware of any author having previously noticed this symptom, which may, perhaps, be explained by the circumstance of my having had the subjects I treated more immediately under my command, and, consequently, an opportunity of investigating the disease at its commencement; while practitioners in civil life, in general, are only consulted when the second stage, or that of delirium, has begun.

have been nearly worn out by the repeated and destructive application of spirits to the stomach, and vice versa. It seldom, however, under any circumstances, lasts many days without the accession of mental derangement to a certain extent.

When the second stage is established, a train of symptoms consonant with high nervous irritation gradually follows; mental alienation, in various degrees and forms, is developed, and with this an exertion of the nervous power to re-establish the state of energy, or rather excitement, to which the system had been habituated, and which existed previous to the cessation of the application of diffusible stimuli to the nervous system through the medium of the stomach. The heart and arteries also at length sympathize; the pulse becomes quicker, though it continues small, and the heat of the surface increases. There is, however, throughout the disease, a marked difference between the temperature of the hands and feet and the rest of the body, the former retaining, in some degree, the icy and clammy feel already spoken of, while the rest of the surface may become even hot and dry. If this state continues long without amelioration, a clammy sweat pours from the skin, accompanied with excessive irritability, the disorder of the mind increases, and objects of the most frightful forms present themselves to the imagination of the patient, and in positions in which, as Dr. Pearson says, "it is physically impossible they can be situated." I recollect having witnessed a very distressing instance of this sort in the case of a man of the fifth regiment: the unfortunate sufferer, for a considerable time before his death, imagined he saw the devil at the ceiling above his bed; and as the disease, which terminated rapidly, increased, he fancied the evil spirit approached him with a knife to cut his throat; and he actually expired making violent exertions to avoid the fatal instrument. Fortunately, however, the disease does not always assume so intractable a form; and when judiciously treated, and not blended with endemial fever, or other diseases, or occurring in subjects worn out by repeated attacks, it will, in much the greater proportion, terminate favorably. The mental bias is generally of the melancholic sort, usually concerning some misfortune to which the patient was liable previous to his illness. Thus a soldier will often think he is accused of some military crime, and the whole of his attention will be occupied in endeavoring to exculpate himself of it; or, if he has been much on service, he perhaps fancies he sees the enemy coming in at the window with fixed bayonets; while if he has been at any time of his life religiously disposed, he supposes he has committed some deadly sin, for which he cannot expect forgiveness, and calls frequently on his comrades to read prayers to him, as he thinks he is soon to appear before his God. During all this he makes frequent endeavors to get out of bed, and cannot be thoroughly convinced of the fallacy of his ideas; at the same time he is generally tractable, if properly managed, and will, in most instances, attend for a short time to what his medical attendant advises, and will even answer questions rationally; but he almost immediately relapses into his erroneous train of thought.

Cases sometimes occur where the patient fancies that vermin or loathsome objects are near or upon him, or that he is occupied in drawing ribbons in quantity from the extremities of his fingers, with a variety of extravagancies of a similar nature.

From the moment delirium is fairly established, the patient is deprived of the restoring solace of "balmy sleep," and is harassed by obstinate pervigilium, which may be looked upon as a pathognomonic symptom of the *second stage* of this disease. During all this the appearance of the countenance

becomes particularly anxious, the tremor of the hands and tongue generally continue, and the fur on the latter increases; the urine at the same time becomes scanty and pale, and the bowels rather confined, or, if relaxed, the stools are dark colored; the pupils at this period are contracted, but without intolerance of light.

When these symptoms have continued for one, two, or three days, and in a few instances even beyond that period, where a fatal termination is not about to take place, I have almost always observed their gradual mitigation, attended with a strong tendency to sleep, exhibited by yawning and drowsiness, which, as soon as it supervened, became profound, and lasted from six to eighteen hours, and occasionally longer, constituting the *third stage* of this nervous paroxysm, or general relaxation of the nervous energy, similar to the capillary relaxation of the arterial system which takes place during the sweating stage of ague, and to which, in almost every instance that I have seen, convalescence has succeeded.

I am aware that authors mention having seen delirium continue for a month in this disease, but no such occurrence has fallen within my observation. I once, however, witnessed a fatal instance where it lasted six days. The subject of it was a black native of the Isle of France; but this case may be regarded as uncommon, the patient having refused to take any medicine, and persisted in his determination with the greatest obstinacy to the last moment of his existence.

A second exception to this general course presented itself to my observation in the case of an old soldier, fifty-one years of age, and much addicted to drink. The disease in this instance was so violent, that partial effusion must have taken place within the cranium, as for some days after the sleeping stage commenced it was exceedingly disturbed, and a state nearly of fatuity existed, which was accompanied by paralysis of the tongue: these symptoms were, however, gradually removed by the aid of blisters, alteratives, and tonics, and due attention to the state of the bowels, and tolerable health was restored; but shortly after, this patient fell a victim to a fit of apoplexy.

On dissection, general vascular turgescence, and serous effusion into the ventricles, and on the surface of the brain, were alone discovered.

When the third or sleeping stage does not supervene in due course in this disease, and the general symptoms increase in violence, the mind appears to labor under excessive irritation, and the patient makes violent and frequent struggles, which are attended with copious perspiration. This, as the disease advances and the strength fails, becomes deadly cold; the pulse at the same time increases in rapidity, becomes thready, and declines in vigor; the tremor of the hands also augments and extends to the whole frame, and approaches to subsultus tendinum, though it does not exactly resemble that affection; it seems rather allied to nervous rigors, which I have sometimes witnessed in violent cases to precede the approach of the sleeping stage, and which are very alarming, particularly to those unaccustomed to meet with them, as by such persons they are liable to be taken for rigors indicative of internal mischief.

According as all the symptoms of the malady increase, the pupils become exceedingly contracted, the countenance is pale and anxious, the tongue brown and dry in the centre, the patient talks incessantly and with astonishing rapidity, and may be, perhaps, affected with pseudoblenitis and carpalgia. The delirium then becomes excessive, and continues till a short time before death. In one case, at this stage, the mind was so diseased, that after

having desired the patient to put out his tongue, he continued for nearly half an hour drawing it in and putting it out alternately, in quick succession, whenever I looked at him, from a deranged association of ideas.

There is generally, however, a calm previous to death, which in most instances takes place without a struggle, though in some cases it may be immediately attributable to the supervention of an epileptic fit.

During the course of this disease, the patient seldom complains of any local pain, and when asked how he feels, will often answer that he is perfectly well. I have met with four instances of this complaint attacking black men, and three, where the subjects of it were white females, the wives of soldiers. Indeed, all classes of human beings appear to me equally liable to it, when predisposed by the same intemperate habits; but, from want of means, it is proportionably a rare occurrence amongst the black population within the tropics.

Such are the general symptoms of the three stages of this complaint, as they presented themselves to my observation.

The first, or the stage of exhaustion, I would compare to the cold stage of ague; the second, or that of nervous excitement, to the hot fit; and the sleeping or third stage of this disease, to the sweating stage of intermittent fever. Thus completing the analogy between the arterial and nervous paroxysms in the two diseases.

It will be seen by what I have generally stated, as well as by the definition I have given of this disease, that I regard it to be altogether of a nervous nature. Mr. Pearson has described a disease under the appellation of *erethismus mercurialis*, which, though affecting a different system, is attended with symptoms resembling some of the most remarkable of those in the first stage of the disorder treated of in this essay. I have copied the learned author's definition of it in a note* below, with a view to show how particular systems may become affected by particular causes. As soon as mercury ceases to act as a stimulant to the vascular system, either from the effect of long administration, or a peculiar idiosyncrasy of constitution indirect debility is the consequence, affecting more particularly the system on which its stimulating effects have been most evident. Hence the production of the symptoms described in the note, as well as the propriety of the tonic and stimulating mode of treatment proposed by its author.

We must not be astonished at different substances affecting in a particular manner different systems. We know that even different principles of the same substance will have this effect; for example, the infusion of tobacco which contains† *nicotin*, acts by its influence on the arterial system, and will even induce death by a suspension of its action; while the essential oil, which does not contain *nicotin*, is equally destructive, but acts principally upon the nerves. Hence we can have no difficulty in comprehending the possibility of *delirium tremens* being a nervous paroxysm, during which the brain and nervous system are particularly, and at least functionally deranged.

The predisposing cause of this affection, as it has been already stated, is generally agreed upon by authors to be the habitual and excessive abuse of

* "Great depression of strength, anxiety about the *præcordia*, irregular action of the heart, frequent sighing, trembling, a small quick, sometimes intermitting pulse, occasional vomiting, a pale contracted countenance, a sense of coldness, but the tongue is seldom furred, nor are the vital and natural functions much disturbed. In this state, any sudden exertion will sometimes prove fatal."

† Vide *Paris's Pharmacologia*, sixth edition, vol. 1, p. 245.

strong liquors; though this predisposition may be induced by the immoderate and long continued use of any of the diffusible stimuli, such as opium, &c. Notwithstanding that cases having their origin attributable to the last mentioned causes have not come under my immediate notice, I feel convinced from their nature that they sometimes do occur; and indeed, I have the testimony of a medical officer of acknowledged high talent in favor of their existence, who had an opportunity of treating more than one case of the kind in his practice. I recollect his relating one in particular to me, the subject of which was a lady, who was in the habit of taking immoderate quantities of laudanum privately, and who, on being prevented from persevering in her habits, became attacked with this disease. Starvation, emanations from lead, malaria, &c., are also said by some authors to induce *delirium tremens*; but of this I cannot speak from experience, never having witnessed symptoms resembling that disease as their consequence.

I have frequently observed aberration of intellect to accompany typhus, even long after the patient was, according to my judgment, out of all danger; but it was not accompanied by any of the pathognomonic symptoms of *delirium tremens*.

Subjects, in whose constitutions the ebriositic diathesis has been established by habitual excesses, may be attacked with this disease, after having been exposed to hunger or deleterious exhalations from lead or swamp: but in such persons the complaint, though it may be somewhat complicated, or masked in the same way as we sometimes observe agues to be, would have come on in due course after the sudden cessation of accustomed intemperate habits without their aid. I believe it will be found, that the *delirium* which follows hunger, emanations from lead, malaria, &c., when it does not occur in subjects duly prepared for *delirium tremens*, by the long continued abuse of strong liquors, will be unattended by any of the other pathognomonic symptoms of that disease. In short, I am of opinion, that true or legitimate *delirium tremens* will never be found to arise in any but those subjects in whom the necessary predisposition has been induced, by the intemperate use of some of the diffusible stimuli.

The immediate or occasional cause of the disease appears to me to be in general the sudden cessation, if I may use the expression, of the application of accustomed stimuli, through the medium of the digestive organs, to the nervous system, in consequence of which cessation, the nervous power gradually sinks to the lowest ebb; and in endeavoring to rally and re-establish the lost equilibrium between it and the vascular system, its efforts exceed the exhausted resources of the sensorium, the consequence of which is *delirium*, &c.

In the *Memoires de l'Academie Royale de Medicine*, tome premier, Dr. *Levielle* has written a paper, "*Sur la Folie des Ivrognes, ou sur le Delire Tremblant*," in which the author seems to have paid more attention to the diseases with which he states *delirium tremens* may be complicated, than to the true nature of the affection itself, as may be seen by referring to the 4th Fasciculus, No. 18, of Dr. Johnson's Journal for August 1828, in which publication, I had an opportunity of reading the review of it.

This author draws, amongst others, the following conclusion:—"This *delirium* consists in exaltation of the vital powers of the brain, excited by alcoholic molecules, absorbed from the surface of the stomach and bowels, and carried into the current of the circulation." With regard to the theory of the disease being excited by the absorption of alcoholic molecules, I can only say, that I never saw an individual attacked with *delirium tremens* so

long as he continued to indulge in his accustomed alcoholic potations; but it invariably came on when old drunkards ceased for a given time, either from the effects of an excessive debauch, or from any other cause whatever, such as a wound, a fracture, or a fever, to take their usual inebriating draughts; showing clearly, that although intemperate habits may be the predisposing, yet they are not the immediate causes of this complaint; and hence, that the absorption of alcoholic molecules would, in this point of view, rather tend to prevent than excite such a disorder.*

The proximate cause of this disease, must of course, vary according to its different stages; thus, in the first, it will be found to be indirect debility of the nervous system; in the second stage reaction, or a morbid increase of action in the same power; and in the third, or last stage, a general relaxation of it.

It appears immaterial what form of disease or accident immediately precedes the malady under consideration; the nervous disorder, when it supervenes, is always of the same nature.

When this disease terminates fatally, it does not seem to me to be owing to venous congestion, as the late much to be lamented Dr. Armstrong asserts in his valuable work, or to inflammation of the brain, as Dr. Clutterbuck maintains in his Lectures, in the *Lancet*, vol. ii, page 376. I would rather ascribe it to serous effusion within the cranium. Baron Larrey says,† "*Dans les acces de colere, et dans toutes les passions violentes il paraît que les fonctions du système absorbant sont suspendues, ce qui fait accumuler instantanément ou pour toujours les fluides dans les cavités sereuses du corps.*"

The irritation which obtains during violent delirium, must be equivalent to violent passions, and consequently may produce the same effect. Dissection, as far as my experience goes, bears me out in this opinion. The fatal case which occurred during the year alluded to in the annexed table, afforded strong proof of the correctness of my assertion; and every post mortem examination that I have since witnessed, tended to confirm me in these sentiments. Mr. Home, of the eighty-fifth regiment, then attached to the hospital staff, who assisted me in the dissection above alluded to, drew up the following report:—

"On bringing the surface of the brain into view, it did not exhibit any

* When this essay was ready for the press, I read a note to page 157, vol. 4, of Mr. Cooper's edition of Good's Study of Medicine, which I shall take leave to copy here, as it comes from such high authority. Mr. Cooper says—"Post obit examinations have also frequently pointed out another local cause, which we should otherwise little expect, and that is a displacement of the transverse colon. The facts in support of this doctrine have not been so numerous in this country as in France, and its correctness has even been doubted. In Paris, however, the opportunities of dissecting the bodies of insane persons, have been for many years much greater than in London; and when we find such authorities as MM. Pinel and Esquirol attesting, by recorded dissections, the truth of the cause here assigned for the present species of mental alienation, the fact, in relation to the natives of France, must at all events be admitted.

To this, I can only observe, that I never remarked such a displacement in any of the dissections I witnessed; but, should such an occurrence at any time be detected, I should be more disposed to regard it as the effect than as the cause of delirium tremens; the violent efforts which are sometimes made during the height of this disorder, being quite sufficient to induce an irregularity in the situation of the floating viscera: therefore, although I am free to admit with Mr. Cooper, that such phenomena may have been discovered in dissections of the insane by MM. Pinel and Esquirol, who, from the situations they hold, must have had frequent opportunities of making such examinations, yet I cannot comprehend how such a displacement could be looked upon as a "local cause" of delirium tremens.

† Vide *Journal Complémentaire du Dictionnaire des Sciences Médicales*, troisième Observation, Mai, 1820.

marks of recent inflammatory action; and, with the exception of a small quantity of coagulable lymph, which, on removing the dura mater, was found thrown out between that coat and the tunica arachnoidea, appeared otherwise healthy.

"All the ventricles contained a considerable quantity of serous fluid, but more especially the two lateral, which were very much distended.

"The choroid plexus showed no marks of turgescence. The contents of the thorax and abdomen presented a natural appearance. The liver was small sized, but healthy in its parenchyma."

The diagnosis in this disease is not difficult, if attention be paid to the symptoms already detailed, which, taken as a whole, do not resemble those of any other disorder, and will immediately distinguish it from the delirium attendant on phrenitis, typhus, &c. &c. There may, however, it has been thought, be some little doubt, at least for a short time, on the minds of those unaccustomed to meet with cases of this kind, in distinguishing them from mania. Dr. Armstrong mentions two cases which assumed the character of confirmed madness, in consequence of which, he says, "there can be no question but this disorder may identify itself with true mania in particular subjects." I have never, in any of the numerous cases I have seen, observed this consequence; but, as I already mentioned, I have witnessed temporary paralysis and fatuity ensue, apparently from partial effusion on the brain; I therefore see no reason why such a condition of the cerebral vessels and parenchyma might not be induced, during a severe attack of this disorder, as is necessary to the production of true mania, or even any other affection depending on structural or functional derangement of the brain; but then it becomes quite another complaint, and should no longer be treated as the one under consideration.

Delirium tremens may occasionally supervene during the puerperal state, and hence might be mistaken by inexperienced persons for puerperal mania; but a due attention to the stages which it observes, as well as to the investigation of the previous habits of the patients, will generally enable the physician to distinguish between these diseases, which, in my mind, are very nearly allied to each other in their nature, inasmuch as they are both examples of true nervous delirium, and each caused by the sudden privation of habitual stimuli. It might even so happen that both disorders should be manifested successively in the same subject, a circumstance which would in all probability lead those who were not aware of the possibility of such an occurrence, to regard them as one and the same disease.

As a mark of distinction in the alienation attendant on delirium tremens, it is said that the hallucination is solely concerning the patient's private affairs; but this I have not always observed to be the case, though it generally is so; besides, it is well known, that in mania, the mental aberrations might be on the same subject. Perhaps we should arrive nearer a pathognomonic distinction in stating, that in cases of mania, the mental derangement increases at the appearance of day-light, while the contrary is invariably the case in the disease in question, all the symptoms becoming more violent at night, and undergoing a sort of remission as the day begins to break; by which it would appear that confirmed madness is beyond the precincts of febrile revolution, while this disease is still within its control.

The celebrated Darwin in his *Zoonomia* speaks of delirium ebriosum,

* See a paper on the Cause of Puerperal Mania, in Dr. Ryan's *Medical and Surgical Journal* for February of this year.

which, from the name, is also liable to be confounded with the disease under consideration. But on investigation, it will appear, that he only alludes to the delirium which *immediately* follows indulgence to excess in spirituous liquors; this affection, therefore, is easily distinguished, and requires a very different mode of treatment from the delirium which does not come on until a given time after the cessation of intemperate habits. The doctor, however, judiciously warns us against an attempt to relieve it by blood-letting, having been well aware of the indirect debility consequent to this state, and of the increased danger likely to follow a plan of general evacuation.

There was a man in the light company of the fifth regiment, named John Holding, who has since been discharged from the service under peculiar circumstances. He was an habitual tippler, and whenever he exceeded his usual allowance, which was tolerably often, he was instantly attacked with furious delirium, or what Dr. Darwin terms delirium ebriosum; and which, if not cautiously treated, was followed by a consequent state of exhaustion, and in due time by all the stages of delirium tremens.

This peculiar idiosyncrasy of constitution, by presenting both diseases successively in the one subject, serves to point out clearly the difference which exists between the delirium consequent to the immediate effects of spirits, called delirium ebrietas or ebriosum, and that which succeeds in one, two, three, or more days, as the consequence of *suddenly* desisting from the *habitual* abuse of any of the diffusible stimuli, and which in contradistinction I termed delirium ebriositatis.

I once witnessed a very different kind of immediate effect from the one just described to follow the immoderate use of ardent spirits: it occurred to a prisoner of war in France. The nervous power and irritability of the stomach were so much destroyed by the large quantity he swallowed, that emetics alone were not productive of vomiting until aided by cautious and sparing venesection to relieve the sanguineous pressure on the brain, and the stimulus of large and repeated doses of æther taken into the stomach. The state of this patient bore so strong a resemblance to that exhibited in apoplexia, that it might with propriety be termed apoplexia ebriosa.

All persons who die suddenly from the effects of immoderate quantities of spirits are affected in this way.

Emetics of the sulphate of zinc, assisted by the administration of antispasmodics and stimulants, such as æther, camphor mixture, coffee, &c. with the application of cold to the head, while the surface of the body and extremities are sponged with tepid water, are the most probable means of affording relief in this particular state. Whenever bleeding is found indispensable, it should only be employed with a view to relieve congestion, and care should be taken that it be not pushed so far as to increase debility.

Some difficulty will be experienced in forming a just prognosis in this disease, it being so very insidious in its effects; in giving it we must, of course, be guided by the constitution and habits of the patient, as well as by the violence of the symptoms with which he is affected. In a worn out and diseased habit, much addicted to the abuse of spirituous liquors or diffusible stimuli of any sort, and one that has, perhaps, suffered frequent attacks of this disease, more is to be feared, as in such cases, the indirect debility or exhaustion may be such as to require an effort too great for the worn out nervous system to support, in its endeavors to restore order. On the contrary, in a young and healthy subject, this disease is seldom fatal when properly treated; but in either case we should be considerably assisted

in forming our opinion by attention to the favorable or unfavorable symptoms detailed in the course of this essay.

The state of the pulse, though not always an infallible guide in disease, has been to me a comparatively sure one in this complaint; as when its frequency did not exceed* one hundred strokes in a minute, I looked on the patient, generally speaking, as safe; but on the contrary, when from its rapidity and the tremor of the hands it could scarcely be counted, I considered him in imminent danger.

In the method of cure, I would recommend that the most particular attention should be paid to the various stages of this complaint; and as in each a very different series of symptoms exists, so I would suggest a consequent modification in the plan of treatment. The age, temperament, habits, and integrity of the constitution of the patient, as well as the nature, or type, of any accompanying disease or accident, become all necessary objects for our consideration; very great care should likewise be taken to soothe all irritation of mind by every moral as well as physical means.

During the first stage much may be done; the disease may even be cut short, and a prevention of the second stage affected under proper management, that is, by attending sufficiently to the precept, "*veniente occurrere morbo*;" thus, if slight gastric derangement be present, attended with nausea and occasional vomiting, I have found effervescent draughts, in which there were ten drops of laudanum, administered every second hour, with emollient, and if necessary,† anodyne enemata, very efficacious. In the intermediate hour, I have been in the habit of giving an ounce of rum with a little warm water and sugar, and of prescribing the warm bath, or tepid affusion, or even the cold affusion, according to the strength of the patient, and the probability of the production of reaction; thus in a young and healthy subject I would have recourse to the cold affusion, and "*vice versa*;" but if in this stage the warm bath should be preferred, it ought not to be of a temperature high enough to induce debilitating effects.

I would recommend that anodyne frictions be at the same time made on epigastrium, and that the head should be shaved and well rubbed with strong volatile liniment, so as gently to stimulate the surface of the scalp: a blister to the nape of the neck is also of advantage in assisting to excite action in the immediate vicinity of the brain.

Some American physicians recommend emetics in this disease, but as they appear ignorant of the stages it observes, they cannot be expected to point out the proper period for their administration; for my own part, I would not, even in its second stage, risk giving one more permanent in its action than the sulphate of zinc, as I should fear its debilitating effects, more particularly those arising from tartar emetic.

* Dr. Ryan says, in page 233 of his valuable journal for September 1829, "Mr. Blake thinks the prognosis unfavorable when the pulse exceeds one hundred, but my experience enables me to form an opposite opinion."—Now I refer to what I have said above, which is an exact copy of the paper I published on this subject, and from which the doctor quotes, to enable my reader to judge of the propriety of his assertion: saying that when the pulse does not exceed one hundred, I looked on the patient, generally speaking, as safe, does not authorize the unlimited adoption of the converse of the proposition. I have seen many patients recover when the pulse exceeded one hundred, though "when from its rapidity and the tremor of the hands it could scarcely be counted." My experience led me to consider patients so affected in imminent danger.

† Reference to my paper, published in the Medical and Surgical Journal for October 1823, will show that I have not copied this practice, I mean the administration of anodyne enemata, from Baron Dupuytren's publication, which appeared some years later than mine.

In the event of the stomach being retentive, and not at all affected with nausea, I gave an ounce and a half of the camphor mixture with twenty or thirty drops of æther, and ten of the tinctura opii, in lieu of the effervescent draughts; and when the appetite allowed it, I permitted soup, arrow root, sago, or any other mild nourishment to be taken in moderate quantities; but the stomach was in general so weak as not to call for any thing more than what was given in the way of medicine. My reason for ordering rum in preference to any other stimulating liquor, was that the patients who were under my care, were accustomed to that spirit; to patients of a different sphere in life I would allow wine, or porter, &c., as the circumstances might indicate.

Dr. Gregory, in the last edition of his *Elements of the Theory and Practice of Physic*, says, in speaking of the treatment of delirium tremens, "Where the complaint can be traced distinctly to the excessive use of spirits, the accustomed stimulus must not be too rapidly withdrawn." I quote this paragraph, not with a view to differ from the doctor in the view he has taken of the treatment of this disease, as far as regards the administration of the accustomed stimulus, but lest it might tend to mislead as to the immediate cause of the disorder, which is the sudden cessation of intemperate habits. Now saying the accustomed stimulus must not be too rapidly withdrawn, would imply that the disease arose while the intemperate habits were persevered in, which is the reverse of my experience on the subject, and is, in my mind, calculated to give origin to fallacious notions regarding it. When constipation prevailed, I found a drop or two of the croton oil a most useful medicine; as in addition to its efficiency as a purgative, it appears to act through the medium of the nervous system, and therefore becomes a desideratum in this stage of the disease.

At this particular stage, or that of exhaustion, I would not have recourse to large doses of opium, as is indiscriminately recommended by some authors, and more particularly by Dr. Coates, of Philadelphia, in a memoir he lately published on the subject in the *North American Medical and Surgical Journal*, extracts from which will be found in the *Periscope of Dr. Johnson's Review*.*

Dr. Coates, like other authors on this subject, has not attended to the different stages of this complaint. In his second conclusion, he says, "It consists in a heightened activity of the sensorium; and this appears to arise from the generation in that organ of an unusual vital power, which is not, as is common, exhausted by the narcotic poisons habitually used; this is not considered as an hypothesis, but the expression of a fact existing in nature." The doctor has here described pretty nearly the second stage of the disorder, but not the first, in which the power of the sensorium is depressed instead of being heightened. The enormous doses of opium which he found successful, although they would be injurious in the first stage, might have been applicable in certain cases to the state he describes. When treating of the method of cure in the height of the second stage of this disease, I recommended, in the paper already alluded to, the administration of "full doses of opium;" but I should be sorry to try such means during the primary stage, or that attended by the exhaustion, which succeeds to the deprivation of long accustomed stimuli. How different is Baron Dupuytren's practice; he directs a few drops of laudanum to be administered in an enema, which he says is generally successful. Perhaps we might reconcile the favorable

* Vide Fasciculus iii, No. 16, for January, 1828, p. 457.

results of such discrepance in practice, by taking it for granted, that the sisters of charity, in the wards of the Hotel Dieu, are so attentive and experienced as to detect the disease, either during its first stage, or at the commencement of the second, while Dr. Coates only saw it when the second stage was fully formed: hence the propriety of the division into, and the necessity of attending to its different stages, with a view to the application of appropriate remedial means, according to the nature of each of them.

It is probable that the efficacy of Dupuytren's mild practice arose more from its being applicable to the early stage of the disease in which it was used, than that it should have been owing, as the Baron thinks, "to the absence of digestive powers in the rectum, when compared to those of the stomach, and the absorption thereby of the medicine unaltered into the system." It is well known that three or four times as much opium can be given in the form of an enema as by the mouth, even in perfect health; consequently fifteen or twenty drops, the quantity ordered in the former way, could be productive of but little effect on the system at large, more particularly, if used in the more advanced stage of the complaint; neither would I recommend, either from experience or theory, the exclusive use of stimulating or spirituous liquors, as has been proposed for the cure of this disorder, by Dr. Michael Ryan.*

I am quite aware that cases may occur, in which the habitual stimulus of the patient may be sufficient to bring him through the disease; nay, there may be some so mild as to yield to the unassisted efforts of nature, but such cases are not commonly met with, and consequently ought not to influence our general practice. The doctor says, "In one of the cases which has fallen under my care, a quantity of opium, equal to 960 minims, was exhibited in seventy-eight hours without any effect, and tranquillity, sleep, and health were restored by the administration of the usual stimulus." This statement is very plausible at first sight; but I think it very probable, from the duration of the disease, seventy-eight hours, previous to the administration of the usual stimulus, that sleep was on the eve of supervening, and would have soon come on without its aid; I therefore cannot look upon it as a conclusive example of the efficiency of the exclusive use of spirituous liquors as a remedy in this disorder.

A case of furious delirium successfully treated by mercury, together with local and general blood-letting, is related in the *Periscope of Dr. James Johnson's Journal*, Fascic. iii, page 503, for February 9th, 1828.

From the duration of the delirium, and the peculiar symptoms detailed in this case, as well as the opinion expressed by Dr. Johnson in his judicious remarks on it, I think few will have any hesitation in regarding it as a well-marked example of delirium tremens; yet, I would not, because a young and healthy countryman survived this disease under such treatment, recommend its general adoption, knowing as I do what must be the issue, were it employed in constitutions such as are most generally a prey to this affection.

The success which practitioners may have observed to follow the administration of cordials, and the cautious, but steady perseverance in the use of diffusible stimuli, with suitable nourishment, in cases of delirium arising from hunger, excessive uterine hæmorrhage, typhus, &c., ought not to be a guide for us in the treatment of delirium tremens. These affections, though

* Vide page 791, No. 264, vol. ii, of the *Lancet*, for September 20th, 1828, and the numbers of the *London Medical and Surgical Journal* for September and October, 1829.

they may all, under certain circumstances, be relieved by similar means, are yet essentially different in their nature from the disease in question; delirium tremens alone assumes the regular paroxysmal form, which is manifested by the succession of stages it goes through.

My object at this period, or in the first stage of delirium tremens, would be to raise the lowered scale of the nervous power, not by overwhelming it with large doses, but by the gradual effect of the administration of diffusible stimuli, aided by opium in quantities calculated to allay irritation, without, at the same time increasing debility. The means here mentioned should be persisted in, with modifications as the symptoms increase or diminish, and with a view to the general principles already laid down; which, if properly attended to, will in many cases cut short the disease by averting the second stage, and inducing sleep in the same way as the warm bath, on one principle, and bleeding* on another, used during the cold stage of ague, may either bring on the sweating, and thus prevent the accession of the hot stage, or by relieving congestion, prevent the supervention of either, and thereby at once shorten the paroxysm. I have witnessed the happy result of this mode of practice in several instances at the commencement of this disease; among many, I shall here take notice of one which appeared singular, from the symptoms of the disease having followed almost immediately the primary effects of habitual intemperance. This patient, a general hard liver, and a musician of the fifth regiment, had been drinking very freely for three days, and had been in a state of intoxication every night during that period; on the morning following the third night's debauch, he walked down with the regiment to bathe; the distance from the fort where he was quartered in St. Vincent's, to the sea, is about one mile of rapid descent. On his return he came to hospital, and stated, that, in coming out of the water, he was seized with rigors, and felt very weak, and that he then suffered from pain in the loins, with cramp in the calves of the legs; the pulse was exceedingly slow; the temperature of the surface low, particularly of the hands and feet; the stomach was slightly irritable, and the tongue and hands in a constant state of tremor. Towards evening a tendency to mental alienation succeeded; but by following the plan of treatment just now recommended during the first night, he was considerably relieved, and had no return of it afterwards.

I mention this case, as well to show the good effects of immediate and appropriate treatment, as to give an example where the disease, which, under ordinary circumstances, would not perhaps have come on in less than two or three days from the moment of leaving off the use of the accustomed stimulus, was brought on in less than twelve hours, owing to the sudden depression of the nervous energy which succeeded the immersion of the body in cold water, the system having been too much exhausted to allow of its being capable of the least arterial reaction. The circumstances of this case would lead me to speak of the effects of indiscriminate bathing in the West Indies, where intemperance is almost inevitable amongst soldiers; but as that would be foreign to my present purpose, I shall only say, I have always been of opinion, that when the sea is at any considerable distance from the barracks, such a practice is attended with more harm than good; and that, as the residence of a regiment becomes prolonged in a tropical climate, the bad effects arising from it must increase in the same ratio. But to return from

* See Dr. Mackintosh's Remarks on the effects of Blood-letting in the cold stage of Intermittent Fever.—Edinburgh Medical and Surgical Journal, April, 1827.

this digression, and conclude the consideration of the treatment of the first stage of this disease, I would recommend that it should consist of the stimulo-narcotic plan, such as has been already described; it being, in my opinion, the only philosophical mode to be adopted during its continuance.

The practice of depletion, or the administration of opium or spirits in large quantities would be equally injurious: the former acts by inducing direct, and the latter indirect debility, either of which states would only tend to increase the symptoms already pointed out, and consequently be likely to induce greater reaction, and more distressing efforts in the sensorium and nervous system in general, during the succeeding stage of the complaint, should there be stamina remaining sufficient to support them.

Should, after all our efforts, the second stage, or that of nervous reaction supervene, we must not be discouraged; but then act on the principles generally recommended, namely, the administration of full doses of opium; taking care, at the same time, to support the efforts of the system by the assistance of diffusible stimuli and antispasmodics, such as brandy, rum, wine, porter, and camphor or musk mixture, with ether, as directed in the first stage, varying, however, their administration according to circumstances. To these means I have been in the habit of adding calomel and Dover's powder, say two grains of the former, and six of the latter, every two hours, until the system became affected, or the disease yielded. Mercury may have been of service here indirectly, owing to its deobstruent and equalizing effects, as well on the circulation in general, as on the secretions.

The warm bath should also be prescribed with the same views, but particularly to soothe nervous irritation, and favor an equal distribution of the circulating fluids, by exciting general perspiration, during the absence of which cold applications ought to be constantly kept to the head, in order to diminish sensorial action.

The state of the bowels ought likewise to be watched, and whether costiveness, or the nature of the egesta, render evacuations necessary, the croton oil becomes as essential a remedy in this as in the first stage; indeed, I have observed the best effects from procuring daily, two or three evacuations through the aid of this concentrated and energetic medicine. They appeared, by emulging the hepatic system, to relieve the mental affection without inducing debility; should the oil be productive of much irritability of stomach, it may be administered in proportionate quantity, by friction to the abdomen. We must persist in this mode of treatment until a favorable change may be foreseen, which will manifest itself by a gradual diminution of all the symptoms, and a tendency to sleep. This is sometimes preceded by slight nervous rigors, which are liable to alarm those not acquainted with their nature and consequences. Care should be taken, at this particular approach of crisis, not to interfere too much with the intentions of nature, by over doses of medicine, particularly of opium; and I must here mention, that I think, after a fair quantity of that active drug has been administered, we ought to be cautious in giving more, without allowing sufficient time to intervene between the doses; for, as Dr. Pearson observes, "if they do not succeed at their first operation, they add much to the intellectual confusion, and are fraught with danger."

It does not appear, from my experience, that there is any advantage to be obtained in attempting to break the chain of morbid concatenation too abruptly, as the stage of mental irritation, when once formed, seems to require a certain time to subside, in proportion, perhaps, to the duration of

the stage of exhaustion, to the primary mode of treatment adopted, and to its previous causes.

It would be as vain to attempt to cut suddenly short this disease, when its second stage has fairly formed, as it would be to endeavor to arrest, abruptly, the progress of typhus fever at the height of its career. Both affections are equally efforts of nature to re-establish health, and must go through a certain course before that object can be accomplished. All that we can do in either is to mitigate as much as possible all urgent symptoms, and at the same time to support the strength of the system, so as to pilot, if I may be allowed the expression, the patient through his disorder, with the least possible risk of structural injury to his constitution.

From the beginning of this stage, our most particular attention ought to be directed to the moral management of the patient, and we must endeavor, by all the means in our power, to gain ascendancy over the mind, without, if possible, having recourse to coercive measures; in fact, the principles laid down by Messrs. Pinel, Esquirol, and other authors, on the subject of mental alienation, become particularly applicable to this disease; but as they are generally known, a recapitulation of them here is not necessary.

Should sleep come on, it will be at first disturbed and accompanied with nervous startings; it is, therefore, to be encouraged by all the means in our power; all noise should be avoided, and in warm climates a musketoe net ought to be let down, so as to preclude any annoyance from insects. Should the patient awake soon, he will often be in a state of alarm and nervous agitation; but, if some warm stimulating drink with a moderate dose of opium be given and mild and assuring conduct adopted, he will in almost every instance very soon fall into a more profound sleep, from which, through the restorative effects of "nature's soft nurse," he generally awakes perfectly rational, after which we have little more to do than support the strength, and gradually diminish the quantities of stimuli which we have been in the habit of administering, so as to bring the constitution back to a moderate and healthy degree of excitement.

Perhaps it may be well to notice here a curious example of this disease terminating favorably, in which that sort of profound sleep, or third stage, was prevented by the supervention of pneumonia. As the irritation arising from the new disease increased, the symptoms of delirium tremens diminished.

In this case I found it necessary to bleed freely and blister the chest, and, of course, to modify the administration of stimuli. It would appear that the inflammatory excitement raised in the thorax was sufficient, in this instance, to supersede, or extinguish, the cerebral disorder.

The case here alluded to, occurred in a black military laborer, who was much addicted to drinking. He came to hospital on the 14th January, 1823, with a slight wound on the head, and having passed through the necessary ordeal of the first stage of this disease, became delirious on the morning of the 18th. The insanity manifested itself in the ordinary way, but it gradually became excessive, during the height of which he made an attempt to kill the cook of the hospital, whom he wounded severely on the head with a knife, without having received the slightest provocation. Towards the morning of the 19th, he appeared less delirious, but evinced acute symptoms of pneumonia, for which he was bled, blistered, &c., and was discharged from hospital cured on the 31st day of the same month.

Dr. Gregory mentions having witnessed delirium tremens as a sequel, or metastasis, of acute rheumatism. I apprehend, that in such cases the disease

is not the consequence of metastasis, but of its peculiar and immediate cause, the privation of accustomed stimuli, joined to the antiphlogistic treatment employed in rheumatism, which in patients predisposed to delirium tremens by old habits of intemperance, would hasten its development. However, when this disease does supervene, it will, in all probability, supersede for a time the rheumatic affection; on the principle of the celebrated Hunter's axiom, that "two diseases cannot exist in the system at the same time."

The traumatic delirium, or delirium nervosum of Dupuytren, which is nothing more or less than delirium tremens, succeeds to some wound or fracture in the same way that it does to a rheumatic affection; yet it cannot be said to be the effect of metastasis, although, were it possible that the wound or fracture was the mere effect of what Burns calls "sympathy of equilibrium," set up to relieve some functional derangement, as gout or rheumatism might be, either might be superseded on the same principle by the more violent disease in question.

Should this second stage of the nervous paroxysm continue, and the wished-for sleep not supervene, while untoward symptoms, such as have been described in the course of this essay, ensue, we must persist in the principle of our treatment, but with variation according to existing indications. Thus, at this period, when effusion has either commenced, or is about to take place, I would recommend, contrary to the general opinion, the application of a blister to the head, and the liberal administration of musk and ammonia. I would also blister the extremities, and order mercurial frictions, to excite the action of the absorbents, and continue the use of the tepid bath, &c. Though, when symptoms have attained this height, I fear little benefit can be derived from medical assistance, as it is more than probable effusion has taken place, which, if to a considerable extent, is generally the forerunner of death.

I have not noticed blood-letting as a general remedy in this disease, having met with few cases that required it; and, as from its nature and definition, I do not regard it as likely to be benefited by general depletory measures: however, I do not say that it may not occasionally become a necessary and even a very efficacious auxiliary, when practised in peculiarly young and vigorous subjects during the height of the second stage of this complaint, or where symptoms of local determination may manifest themselves, as in the case of the black man already related; but on no account is it to be carried, either locally or generally, further than merely to relieve the temporary morbid excitement, to effect which, the detraction of a few ounces of blood will usually be sufficient, and a repetition of it seldom necessary.

When a constitutionally local inflammation supervenes in any organ during the existence of delirium tremens, we may, as I already stated, be obliged, owing to the fear of structural mischief, to bleed even freely; but, at the same time, we must not lose sight of the general nature of the disease; therefore, while on the one hand we reduce the strength of the arterial system by blood-letting, we ought to endeavor, on the other, to raise, by appropriate means, the nervous power; and as it were, make both systems contribute their mite towards re-establishing a due balance between them, without which healthy action cannot go on.

From what has been said, it will be readily understood, that the prophylaxis in this complaint consists in the gradual abandonment of intemperate habits, and in improving the general state of the constitution, which is to be attained by due attention to it on general principles.

I have now terminated the detail of my opinions and experience on the subject of this interesting disease, as it appeared to me during a residence of upwards of five years within the tropics, where it is, as I already stated, very frequently to be met with amongst all classes of people, but particularly among soldiers.

In doing so, I trust, with due deference to the opinions of others, that I shall have succeeded in establishing, to the satisfaction of my readers, the propriety of coming to the following general conclusions,

First, that delirium tremens is altogether a nervous disorder, the consequence of the sudden cessation of habitual intemperance in the use of diffusible stimuli, and to which the system is equally liable, whether it be suffering under a sporadic or traumatic affection, or be in apparent ordinary health at the moment of such a sudden change in its habits.

Secondly, that this disease is one of a paroxysmal type, and may be divided into three stages, all essentially differing from each other in their symptoms and nature, and consequently requiring each a different modification of treatment.

Thirdly, and lastly, that the stimulo-narcotic mode of treatment, when so directed and modified as to be applicable to each particular stage of this disease, is the one which promises to be the most successful.

TABLE,

Showing the duration of the various stages of Delirium Tremens exhibited in the Cases which were treated in the Regimental Hospital of the Fifth Foot, during the Year, 1822.

Cases.	Age.	Diseases for which originally admitted.	Date of Admission.	Date of the commencement of Mental Derangement.	Date of the commencement of the sleeping Stage.	Date of Death.
1	32	Dysentery Acuta	5th June, 1822.	8th June, 1822.	10th June, 1822.	—
2	40	Obstipatio	21st ditto.	24th ditto.	27th ditto.	—
3	32	Feb. Con. Com. . .	9th Aug.	11th Aug.	13th Aug.	—
4	32	Delirium Trem. . .	17th ditto.	20th ditto.	22d ditto.	—
5	32	Feb. Con. Com. . .	1st Sept.	4th Sept.	6th Sept.	—
6	36	Ambustio	12th ditto.	15th ditto.	17th ditto.	—
7	40	Cholera Morbus . .	14th ditto.	18th ditto.	21st ditto.	—
8	32	Feb. Con. Com. . .	25th ditto.	27th ditto.	30th ditto.	—
9	32	Idem	30th ditto.	5th Oct.	8th Oct.	—
10	33	Idem	3d Nov.	5th Nov.	—	7 Nov.

Extract from a Circular Letter, dated Barbadoes, 12th March, 1823, addressed to the Principal Medical Officer of each Island in that command.

"SIR—Amongst the yearly reports lately received at this office, there was one from St. Vincent, which does great credit to the professional talents of Mr. Blake, surgeon of the fifth regiment.

"The annexed paper, on Delirium Ebriositatis, was attached to that report. It appears to me to contain so much good sense and sound judgment, that I think I am performing a service in distributing it throughout the command; and I should, at all times, feel equal pleasure in making known any subject contained in those annual reports which may strike me as useful to the service.

"The disease treated of by Mr. Blake is well known, and has frequently been reported upon by many medical gentlemen in this country, under the denomination of Delirium Tremens; and the remedies in the treatment of it are similar to those recommended in the present paper; but no writers that I have read, have entered so fully and scientifically into the subject as the present one. They generally agree as to the cause and treatment of this disorder; but the stages of the disease, the analogy of them to those of intermittent fever, have not hitherto been described, nor has its action upon the brain and nerves been compared to a similar one upon the sanguiferous system in intermittent fevers.

"The disease described in this paper is not much known, and consequently little noticed in Europe; it is, however, unfortunately a very common one in this country, and particularly so amongst British soldiers; it becomes therefore of great importance that the theory and practice of it should be well understood, but especially by the junior medical officers, to whom it must be new, and who could have seen very little of it before their arrival in this climate.

"I am to request you will give this paper as much publicity as you can throughout your station; and that you will direct every medical officer under your superintendence to take a copy of it; and that you will have the original preserved amongst the official records in your office.

"I have the honor to be, sir,

"Your most obedient humble servant,

(Signed)

"EDWARD TEGART, Inspector of Hospitals."

"Barbadoes, 17th July, 1823.

"SIR—Herewith I have the honor to send you the copy of a letter which was yesterday received from the Board; and it affords me singular gratification to convey to you the thanks therein contained. I feel also satisfied with myself in having made the use I did of the very excellent paper alluded to. It may have the effect to stimulate others to merit such attention; and I hope it may induce you to continue such useful exertions in the cause of science generally, and professional information.

"I have the honor to be, sir,

"Your most obedient humble servant,

(Signed)

"EDWARD TEGART, Inspector of Hospitals."

Andrew Blake, Esq., &c. &c.

“Army Medical Department,
28th May, 1823.

“SIR—We have to acknowledge the receipt of your letter of the 8th April, with its enclosure; and have to express to you, not only our entire approbation with your proceedings, as regards Mr. Blake's paper, on Delirium Ebriositatis, but beg you will convey to that officer our best thanks for this valuable communication.

“We, at the same time, take this opportunity of expressing our satisfaction with the sentiments expressed by you, in the circular letter which you have circulated on this occasion, and sincerely trust it will be followed by the wished-for exertions of all.

“We have the honor to be, sir,

“Your obedient servants,

(Signed)

“J. M'GRIGOR,

“W. FRANKLIN.

“Edward Tegar, Esq.
Inspector of Hospitals, Barbadoes.”

THE END.